

REMARKS

Claims 2, 10 and 22 have been cancelled. Thus, claims 1, 2-9, 11-21 and 23-27 remain pending. Claims 1, 9, 20 and 21 have been amended. No new matter has been added. In view of the above amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable.

Claims 1-8 and 21-27 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 4,078,553 to Duroux.

It is respectfully submitted that Duroux fails to teach the feature of controlling the resistivity between the electrodes of a group using an inter-electrode conductive medium, as defined in amended claims 1 and 21.

It is further respectfully submitted that Duroux also fails to teach, as recited in amended claims 1 and 21, an inter-electrode conductive medium forming a means for producing on said at least one electrode an estimate of the electrical activity in the subject's biological tissue, said estimate being a mean value of electrical potentials produced on neighbouring electrodes of the group by the electrical activity in the subject's biological tissue.

Duroux essentially describes a physiological serum, for example a simple solution of NaCl in water, and interposed between a patient's skin region and a group of electrodes. The electrodes measure an electric field at different locations of the patient's skin region. Since the electrodes of Duroux are used to detect an electric field and not electrical activity in a subject's biological tissue, the function of the physiological serum is to form a continuous milieu between the electrodes and the patient's skin region instead of controlling the resistivity between these electrodes. Also, since the electrodes of Duroux do not detect electrical activity in a subject's biological tissue, the physiological serum cannot and does not form a means to produce an estimate of this electrical activity on an electrode with a poor contact with the subject's biological

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tissue.

To conclude, applicants respectfully submit that Duroux fails to teach or suggest, as recited in amended claims 1 and 21, (a) the use of an inter-electrode conductive medium to control the resistivity between the electrodes of a group and (b) a means formed by an inter-electrode conductive medium for producing, on an electrode with a poor contact with the subject's biological tissue, an estimate of the electrical activity in the subject's biological tissue, this estimate being a mean value of electrical potentials produced on neighbouring electrodes of the group by the electrical activity in the subject's biological tissue.

Claims 1-8 and 21-27 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,134,480 to Minogue.

Minogue describes essentially an electrode assembly comprising at least two electrodes to be mounted on an insulating substrate. The two electrodes are further covered with an electrically conductive layer. Because the electrical impedance in the region of the layer covering each electrode is significantly less than the electrical impedance in the region between the two electrodes, there is no short circuit between the two electrodes. The electrode assembly is applied to a patient's skin to administer trans-epidermal muscle stimulation via the electrodes.

Since the electrical impedance in the region of the electrically conductive layer covering each electrode is significantly less than the electrical impedance of this layer in the region between the two electrodes (*Minogue*, column 2, lines 1-6), this electrically conductive layer is not designed to control resistivity between the electrodes in such a way as to form a means for producing, on an electrode with a poor contact with a subject's biological tissue, an estimate of the electrical activity in the subject's biological tissue, this estimate being a mean value of electrical potentials produced on neighbouring electrodes of the group by the electrical activity in the subject's biological tissue. In fact, Minogue teaches administration to a patient's skin of a

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trans-epidermal muscle stimulation via the electrodes instead of measurement of the electrical activity of a subject's biological tissue; the electrode assembly has been designed for that purpose.

To conclude, it is respectfully submitted that Minogue fails to teach or suggest, as recited in amended claims 1 and 21, the use of an inter-electrode conductive medium to form a means for producing, on an electrode with a poor contact with the subject's biological tissue, an estimate of the electrical activity in the subject's biological tissue, this estimate being a mean value of electrical potentials produced on neighbouring electrodes of the group by the electrical activity in the subject's biological tissue.

Claims 1-16 and 21-27 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,991,650 to Swanson et al.

Swanson et al. is essentially concerned with a coating for the external surface of a catheter's distal end. This coating is made of regenerated cellulose acting as a mechanical barrier between electrodes located on the catheter and blood cells, infectious agents and large biological molecules while providing electrical contact to the human body. The purpose of the coating of regenerated cellulose over the electrodes is to "facilitate the manufacturing and usage of the catheter distal end assembly" (Swanson et al., column 8, lines 3-4). Furthermore, the robustness of the surface coating permits the manufacture and utilization of electrode configurations formed on a non-conductive base member, made with more efficient processes. Therefore, the coating allows essentially for improvement of manufacturing methods and efficient processing of the electrodes.

Applicants respectfully submit that the passage between column 9, line 64 and column 10, line 9 of Swanson et al., does not mention impedance values between two electrodes leading to the conclusion that the coating of regenerated cellulose would form a means, as recited in amended claims 1, 9 and 21, for producing on an electrode with a poor contact with a subject's

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biological tissue an estimate of the electrical activity in the subject's biological tissue, this estimate being a mean value of electrical potentials produced on neighbouring electrodes of the group by the electrical activity in the subject's biological tissue. To the least, Swanson et al. does not mention nor suggest that the coating of regenerated cellulose is suitable to form such means.

Claims 1-16 and 21-27 stand rejected under 35 U.S.C. § 102(c) as anticipated by U.S. Patent No. 6,584,347 to Sinderby.

Sinderby describes a motion-artifact reducing interface applied to the surface of the electrodes. The motion-artifact reducing interface comprises an electrolyte-permeable matrix having a lower conductivity than the electrodes when the electrolyte-permeable matrix is dry. The function of the interface is to eliminate artifacts caused by motion of the electrodes, changes in the pressure applied to the electrodes, and intermittent contact with surrounding tissue (*Sinderby*, column 5, lines 1-4). More specifically, the matrix of Sinderby is so configured and designed as to create an interface that hosts ions and electrodes and prevents direct contact between the metal surface of the electrode and the surrounding body tissue (*Id.* at column 5, lines 11-13) in order to eliminate problems related to electrodes' motion as mentioned hereinbefore.

It is respectfully submitted that Sinderby fails to teach that the ions hosted in the matrix control the resistivity between the electrodes. Consequently, Sinderby also fails to teach that the ion hosting matrix forms a means for producing, on an electrode with a poor contact with a subject's biological tissue an estimate of the electrical activity in the subject's biological tissue, said estimate being a mean value of electrical potentials produced on neighbouring electrodes of the group by the electrical activity in the subject's biological tissue.

Claims 17-19 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Sinderby in view of U.S. Patent No. 6,148,222 to Ramsey III.

Since claims 17-19 depend directly on independent amended claim 9, which is believed

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to be allowable over the prior art, it is respectfully submitted that these claims are also allowable.

Claim 20, which was objected to by the Examiner, has been rewritten in independent form to include all of the limitations of independent claim 9. Thus, it is respectfully submitted that claim 20 is allowable.

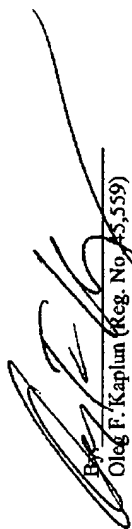
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**CONCLUSION**

In light of the foregoing, Applicants respectfully submit that all of the presently pending claims are in condition for allowance. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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